

ABSTRACT

5 The invention relates to a technique for forming a thin film of good quality on a base substance via an intermediate layer. Such a film formation technique is suitably applicable to formation of an oxide high-temperature superconductor thin film usable for a superconducting wire material, a superconducting device or the like.

10 In the method of forming a thin film on a base substance via an intermediate layer, an interface energy E_a at an interface A between the base substance and the intermediate layer, an interface energy E_b at an interface B between the intermediate layer and the thin film, and an interface energy E_c at an interface C between the base substance and the thin film in a state where the intermediate layer is omitted are calculated, and then a substance for the intermediate layer is selected so as to satisfy conditions of $E_a < E_c$ and $E_b < E_c$.

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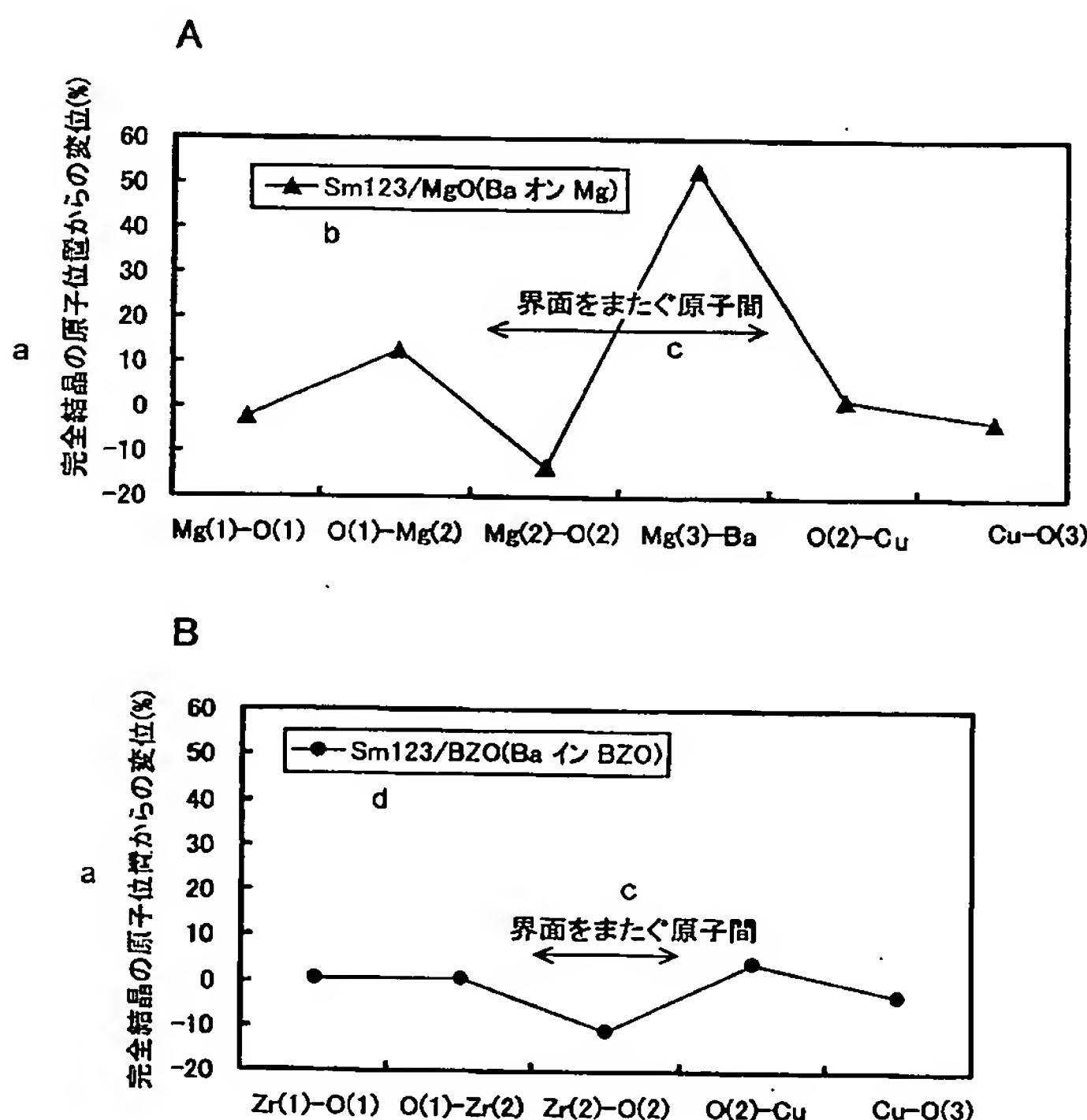
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(54) Title: METHOD FOR FORMING THIN FILM ON BASIC MATERIAL THROUGH INTERMEDIATE LAYER

(54) 発明の名称: 基材上に中間層を介して薄膜を形成する方法



a...DISPLACEMENT FROM ATOMIC POSITION OF PERFECT CRYSTAL (%)
b...Sm123/MgO(Ba ON Mg)
c...BETWEEN ATOMS STRADDLING INTERFACE
d...Sm123/BZO(Ba IN BZO)

(57) Abstract: A technology for forming a thin film of good quality on a basic material through an intermediate layer. The technology is applied preferably to the formation of a high-temperature superconducting oxide thin film being employed in a superconducting wire material or a superconducting device. The method for forming a thin film on a basic material through an intermediate layer is characterized by comprising a process for calculating the energy E_a on the interface A between the basic material and the intermediate layer, the energy E_b on the interface B between the intermediate layer and the thin film, and the energy E_c on the interface C between the basic material and the thin film under a state where the intermediate layer does not exist, and a process for selecting an intermediate layer material satisfying the conditions $E_a < E_c$ and $E_b < E_c$.

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